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FRILO launches version 2024-2 with powerful updates for structural analysis and design

Stuttgart, 16.05.2024 – FRILO Software GmbH has successfully delivered version 2024-2. With the latest software update, the provider of solutions for structural analysis and design is bringing numerous new and improved program features to the market. Highlights include the optimised design of Schöck Isokörbe®, the advanced integration of DC foundation engineering programs into the FRILO environment and new RSX interfaces for detail verifications in steel construction.

With the FRILO version 2024-2, the integration of Schöck Isokorb® has been

further developed. During the design in the PLT FRILO slab program, users are now able to incorporate the Schöck Isokorb® types K-U and K-O with height offset as well as the type Z with load-bearing properties for cantilevered components. In the graphically optimised properties dialog of the PLT, the user also has the option of changing the Schöck Isokorb® insulation proposed by the program after the calculation. Small internal forces can optionally be neglected in the design of the Schöck Isokorb®, and bar projections can be displayed for collision planning. Furthermore, the structural-physical values were added to the output table of the Schöck Isokorb® element used.

Determining utilisation factors for masonry walls in fire incidents

For masonry walls, users of the MWX+, MWM+ and MWK+ programs can determine the utilisation factor in the event of fire ($\boxtimes 6,fi$ or $\boxtimes fi$). Thanks to the factor and by consulting the relevant standard, the wall can be categorised into fire resistance classes depending on the wall thickness. The resulting utilisation factors are implemented in the output and can be used directly for the fire-safety analysis. In addition, the approval database for the products of Wienerberger GmbH, Schlagmann Poroton GmbH & Co. KG. and BV Leichtbeton has been updated to the latest state in all of the four masonry programs. With the provided approval information, a direct link to the approval of the respective manufacturer has been implemented. In addition, the validity of the approval is indicated both in the material dialog and in the output. Moreover, the user can now select whether the self-weight of the walls should be applied in full, with 50 % or not at all (except in MWM+).

Grouted micropiles & pipe grouted piles for pile foundations

For pile foundations, structural engineers can use the new pile types grouted micropiles and pipe grouted piles with the option of internal and external design in Pfahl+. For ductile driven piles, grouted micropiles and pipe grouted piles, the buckling analysis can be performed as a stability verification according to Ofner and Wimmer. Standardised hot-rolled and cold-rolled rectangular pipe sections in various geometries and wall thicknesses can now also be selected in the profile table for prefabricated drilled steel piles. In the foundation programs FD+, FDB+, FDS+ and GBR+, FRILO 2024-2 can be used to define block loads on a foundation, i. e. additional loads limited in both directions in the floor plan. The user can decide in which quadrants the loads are to be applied. With the add-on FD-PRO, users can now also model,

calculate and design circular foundations.

Design single-sided plate beams (L-beams) for all flange positions

For the design of reinforced concrete beams, the cross-section database in the Continuous Beam program DLT+ has been extended to include L-beam cross-sections with the plate on top right, top left, bottom right or bottom left. Consequently, the height, web thickness, plate width and plate height can also be configured for L-beams in the cross-section dialog. In the system view, users can display the calculated effective plate width for single-sided (L) and double-sided (T) plate beams both in the user interface and the output document as a graphic. When the lateral reinforcement of timber beams is realised using steel cross-sections, timber beams can be reinforced with U-profile ranges, L-profile ranges or flat steel profiles. Because the profiles of the flat steel range are arranged horizontally as a standard (width x height), the user can rotate this type of reinforcement cross-section by 90° in the data-entry section of the system under "Reinforcement left" and "Reinforcement right".

New interfaces for detail verifications in steel construction

The framework program RSX can transfer internal forces, cross-sections and materials for the design of frame corners (SRE+), butt plate joints (SPS+), angle connections (SWA+) and fin plates (SFB+) to the respective FRILO programs. The transfer is limited to 2D internal forces. User-defined design sections can be created in RSX and transferred to SQN+ for graphical visualisation of the stress behaviour. For sets of members or individual members, users can transfer the structural system and its dimensions as well as the cross-section and the loads to DLT+. On the defined structural system for the components column, main beam, secondary beam and fin plate verifications can be performed depending on the different steel types and steel grades. Intermediate supports can now be entered in the z-direction in the STS+ steel column program.

Integration of the DC Foundation Engineering programs

Thanks to the integration of the DC software into the FRILO environment, the administration of all DC programs and items is now concentrated in the FRILO Control Center. The new feature also allows DC users to import existing DC items and projects into the Control Center.

To ensure a standardised and verifiable structural analysis document with calculation results from FRILO and DC programs, users can now also import existing DC items into the FRILO Document Designer. add user-defined text and character elements to the output document of the structural analysis. It allows users to apply comments and marks to FRILO and DC items.

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The company, which has been listed in the MDAX and TecDAX since 1999, achieved a revenue of EUR 851.6 million and an EBITDA of EUR 257.7 million in 2023.

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